Response to Oregon Department of Environmental Quality Comments
Vigor Industrial – Swan Island Upland Facility
Appendix D – Storm Water Source Control and Treatment Measure Design Update
August 13, 2015

The following are EPA's response to Oregon Department of Environmental Quality (DEQ) comments on the June 2015 *Appendix D – Storm Water Source Control and Treatment Measure Design Update (Design Update)* for Vigor Industrial, LLC, Environmental Cleanup Site Information (ECSI) number 271, located at 5555 N. Channel Avenue in Portland, Oregon. The report presents proposed interim source control and treatment measures and update to the design of storm water source control measures (SCMs).

EPA previously prepared comments on the December 2014 Storm Water Source Control Measure – Basis of Design Update Report (comments submitted December 22, 2014). EPA has not prepared review comments on the June 2015 Design Update, and EPA's review of the June 2015 Design Update was limited to determining concurrence or closure with specific DEQ comments. Provided below are EPA's comments to the general and specific comments submitted in the July 17, 2015 letter from DEQ to Vigor Industrial.

General Comments

1. EPA agrees with DEQ's comment that the Design Update does not include sufficient information for adequate review of the basis of design for the bioretention facility and other proposed SCMs. The proposed bioretention facility would treat storm water runoff from approximately 35 acres of highly impervious industrial areas. Bioretention BMPs have been applied to treat storm water runoff but are typically much smaller scale (<<1 acre)[1]. Bioretention facilities rely on vegetation specifically planted to filter and adsorb pollutants and the design must consider the periodic inflow depth, duration of inundation that will occur within the vegetated areas of the facility, and the infiltration rates of the soil. The basis of design report does not provide sufficient information or analysis of how the facility will perform hydraulically and relies on literature values for pollutant removal performance estimates that are derived from much smaller scale facilities. EPA notes that the Port of Vancouver has successfully designed, constructed, and operated a "biofiltration pond", which used as the basis for the

[1] https://www.casqa.org/sites/default/files/BMPHandbooks/tc-32_from_newdevelopmentredevelopment_handbook.pdf

bioretention facility at Vigor. Vancouver's biofiltration pond is used to treat a 50 acre drainage area at a location with soils that have very high infiltration rates (e.g., 24-60 inches/hour). Effluent monitoring at the Vancouver facility has confirmed removal of copper, zinc, and solids, however copper concentrations still consistently exceed benchmark levels[2]. The pond is designed to allow ponding of treated storm water up to one foot deep in the facility. Storm water enters the biofiltration facility through two inlet pipelines, allowing preliminary treatment of metals. At the pond inlet there is an oil boom to collect and treat runoff for oil and sediment removal[3]. ERM should provide all design criteria used to design the bioretention facility for Vigor.

2. EPA agrees with DEQ's comment. The interim actions should address all contaminants of potential concern including arsenic, cadmium, copper, lead, mercury, zinc, PAHs, phthalate esters, PCBs, and TBT in all outfall basins as indicated by DEQ.

3. EPA agrees with DEQ's comment that the exclusion of Outfall P by ERM is premature. In the previous *Storm Water Data Gaps Investigation & Site-Wide Conceptual Update Report*, EPA noted that the storm water samples taken at Outfall P were not taken early enough during the monitored storm events to qualify as a first flush event. As such, contaminant concentrations may be higher than those detected in the latest storm water sample events. In addition, a cursory inspection of aerial imagery conducted in 2014 (Google Earth, 2015) indicates that stockpiling of materials both covered and uncovered occurs within the eastern portion of this area. ERM should conduct additional first flush sampling prior to determining whether or not Outfall P can be excluded from source control measures.

4. EPA has no further comments.

Specific Comments

1. EPA has no further comments.

2. EPA agrees with DEQ's comment that SCMs are needed for all contaminants of potential concern as indicated by DEQ.

3. EPA agrees with DEQ's comment and refers ERM to the June 2015 Portland Harbor Superfund Site Preliminary Remediation Goals (PRGs) for in-water receptors.

4. EPA agrees with DEQ's comment; re-routing of storm water conveyances should be clearly identified.

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[2] http://www.kennedyjenks.com/wp-content/uploads/PoV-Benchmarks.pdf
[3] http://www.portvanusa.com/environment/largest-stormwater-bio-retention-facility-in-world-calls-port-of-vancouver-home/

5. EPA has no further comments.

6. EPA has no further comments.

7. EPA agrees with DEQ's comment. Design criteria should include the design storm, design flow rates, treatment measure design specifications, media composition and flow rates, overflow thresholds, design details, and maintenance requirements.

8. EPA has no further comments.

9. EPA has no further comments.

10. EPA agrees with DEQ's comment that the exclusion of Outfall P by ERM is premature. A cursory inspection of aerial imagery (Google Earth, 2015) indicates that that stockpiling of materials both covered and uncovered occurs within the eastern portion of this area. As stated in General Comment 2, ERM should conduct additional first flush sampling prior to determining whether or not Outfall P can be excluded from source control measures.

11. EPA agrees with DEQ's comment that the Design Update still contains insufficient design criteria for the bioretention facility. Design criteria discussed in the Design Update should include media filtration rates, anticipated storm water storage volume, dimensions of the pond, volume of the containment pond, freeboard, media specifications and depth, vegetation specifications, underdrain details, overflow/bypass thresholds, pretreatment, maintenance requirements, lift station specifications, etc. All of these design factors will have a direct impact on the performance of the facility.

12. EPA agrees with DEQ's comment and refers ERM to the *DEQ Guidance for Evaluating the Stormwater Pathway at Upland Sites, Appendix A: Instructions for Developing a Stormwater Assessment Workplan* (DEQ, 2010) for preliminary guidance. The performance monitoring plan should clearly describe the methods and sampling criteria for evaluating the effectiveness of all storm water SCMs implemented at Vigor Industrial.